

### Claims

1. The use  
5 (i) of an alkaline medium,  
(ii) of a first gel which comprises gelatin and  
phosphate ions, and  
(iiia) of a second gel which is free of phosphate  
ions, the first layer of gel being covered  
10 with this second gel and/or  
(iiib) of a medium containing calcium ions,  
for the production of a composition for the growth  
of apatite or/and dentine on tooth material.
- 15 2. The use as claimed in claim 1,  
c h a r a c t e r i z e d i n t h a t  
the alkaline medium employed is an alkaline  
solution or an alkaline gel.
- 20 3. The use as claimed in claim 1 or 2,  
c h a r a c t e r i z e d i n t h a t  
the alkaline medium has a pH of 7.1 to 14, in  
particular of 7.5 to 10, and preferably of 8 to 9.
- 25 4. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the alkaline medium employed is 0.05 to 1N NaOH.
- 30 5. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the alkaline medium furthermore contains calcium  
ions.
- 35 6. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the first gel employed is a gelatin-glycerol gel.
7. The use as claimed in one of the preceding claims,

c h a r a c t e r i z e d i n t h a t  
the first gel furthermore contains fluoride ions.

- 5        8.    The use as claimed in one of the preceding claims,  
         c h a r a c t e r i z e d i n t h a t  
         the first gel has a pH of 2.0 to 6.0.
- 10      9.    The use as claimed in one of the preceding claims,  
         c h a r a c t e r i z e d i n t h a t  
         the first gel further comprises at least one  
         calcium phosphate compound.
- 15      10.   The use as claimed in claim 9,  
         c h a r a c t e r i z e d i n t h a t  
         the first gel further comprises a calcium  
         phosphate compound selected from fluoroapatite,  
         monetite, brushite, amorphous calcium phosphate  
         and hydroxylapatite.
- 20      11.   The use as claimed in claim 9 or 10,  
         c h a r a c t e r i z e d i n t h a t  
         the first gel further comprises fluoroapatite  
         particles, especially spherical fluoroapatite  
         particles.
- 25      12.   The use as claimed in one of claims 9 to 11,  
         c h a r a c t e r i z e d i n t h a t  
         the first gel contains 5 to 30% by weight of  
         calcium phosphate compounds, especially of  
30      fluoroapatite.
- 35      13.   The use as claimed in one of claims 9 to 12,  
         c h a r a c t e r i z e d i n t h a t  
         the first gel contains spherical particles of  
         calcium phosphate compounds, especially spherical  
         particles of fluoroapatite.
14.    The use as claimed in one of claims 9 to 13,

c h a r a c t e r i z e d i n t h a t  
the calcium phosphate compound are used as  
particles having an average size of 5 to 50  $\mu$ m, in  
particular of 10 to 20  $\mu$ m.

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15. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the second gel is free of fluoride ions.

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16. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the second gel is selected from gelatin-glycerol  
gels, polysaccharide gels or carboxymethyl-  
cellulose gels.

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17. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the medium containing calcium ions employed is a  
solution containing calcium ions or a gel  
containing calcium ions.

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18. The use as claimed in claim 18,  
c h a r a c t e r i z e d i n t h a t  
no second gel (iiia) is employed in the case of  
the use of a gel containing calcium ions.

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19. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the medium containing calcium ions has a pH of 6  
to 8.

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20. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the tooth material is defatted, slightly etched  
or/and rinsed before the application of the  
alkaline medium or/and before the application of  
the first gel.

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21. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the tooth material is human teeth or/and tooth  
enamel.
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22. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the components (i), (ii) and (iiia) or/and (iiib)  
are intended for the treatment of carious defects  
by remineralization.
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23. The use as claimed in one of the preceding claims,  
c h a r a c t e r i z e d i n t h a t  
the tooth material is covered with a dentine layer  
or/and a protective apatite layer.
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24. A composition, in particular for use as claimed in  
one of claims 1 to 12, comprising  
a) an alkaline medium,  
b) a first gel which comprises gelatin and  
phosphate ions, and  
c1) a second gel which is free of phosphate ions,  
or/and  
c2) a medium containing calcium ions.
- 20
25. A kit, in particular for use as claimed in one of  
claims 1 to 12, comprising  
a) an alkaline medium,  
b) a first gel which comprises gelatin and  
phosphate ions,  
c1) a second gel which is free of phosphate ions,  
or/and  
c2) a medium containing calcium ions.
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- 35 26. The composition as claimed in claim 24 or the kit  
as claimed in claim 25,  
c h a r a c t e r i z e d i n t h a t  
the components a), b) or/and c1) or c2) are

furthermore defined as in one of claims 2 to 19.

27. A process for the growth of apatite on tooth material, comprising the steps
- 5 (i) application of an alkaline medium,  
(ii) application of a first gel which comprises gelatin and phosphate ions, and  
(iiia) application of a second gel, the first layer of gel being covered with this second  
10 gel and/or  
(iiib) application of a medium containing calcium ions,  
a building up of apatite on the surface of the tooth material being caused.
- 15 28. The use  
(i) of a first gel which comprises gelatin and phosphate ions, and  
(iia) of a second gel which is free of phosphate  
20 ions, the first gel layer being covered with this second gel and/or  
(iib) of a medium containing calcium ions,  
for the production of a composition for the growth of apatite or/and dentine on tooth material, the  
25 first gel furthermore containing at least one calcium phosphate compound.